Ammonium ion trend in selected Malaysian river

ABSTRACT

Ammonium ions (NH4+), exist in the ecosystem by direct atmospheric deposition, mineralization of organic matters from soil and fertilizer input in the form of NH4+ and urea hydrolysis. Mineralization is the process that breaks down organic nitrogen (N) compounds in the soil to release NH4+, Nitrification is the process that converts NH4+ into NO3-. NH4+ is also easily converted into NH3 at high pH. NH4+ is an intermediate product that in favorable condition, converts into a stable product that causes major water pollution of water bodies. Eight out of fifteen automatic water quality stations were chosen to represent NH4+ influx in the Malaysian rivers for discussion in this paper. The paper synthesized published data from the Environmental Quality Report of DOE for the year 2003-2006. The data analysis shows some rivers or Sungai (Sg.) such as Sg. Batang Benar, Sg. Skudai, Sg. Langat and Sg. Labu were continuously experiencing NH influx in 2003-2006, whereas Sg. Melaka, Sg. Keratong and Sg. Linggi the occurrence were recent. As for Sg. Putat no detection of influx in the recent years. Thus Sg. Batang Benar, Sg. Skudai Sg. Langat and Sg. Labu, Sg. Melaka, Sg. Keratong and Sg. Linggi require immediate action to control and reduce the influx. Early detection of NH4+ is crucial to determine the pollution caused by the presence of NH4+ because in circumstances where NH4+ would be converted to nitrate, cause significant algal bloom to the water body and the impact is detrimental on aquatic and water resources.

Keyword: NH4+ nitrification; Water quality; Pollution; Continuous monitoring; River